An Air Force Strategic Vision for 2020–2030

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Two decades of continuous operations that began with Desert Shield/ Desert Storm (1990–91) and continued to the conflicts in Afghanistan and Iraq have resulted in Airmen engaged in responding to current operations, leaving little time to contemplate the longer-term strategic imperatives that will influence the future force structure of the United States Air Force. With Operation Iraqi Freedom recently coming to an end and troop reductions in Afghanistan scheduled to begin this year, it is both timely and appropriate to reinvigorate strategic thought within the Air Force. This article seeks to stimulate a discussion concerning the Air Force's future by addressing a single question: What critical capabilities—through combatant commanders' lenses—will the nation require of the Air Force by 2030?

To answer this question, the Air Force Research Institute analyzed national interests; economic, demographic, and technological trends; defense scenarios spanning the strategic planning space; and Air Force capabilities required to meet future strategic challenges.[1] Research was conducted using futures analysis methods and the Delphi method. The resulting analysis of these issues appears in *Air Force Strategy Study 2020–2030.* Its findings suggest the Air Force should focus on five critical capabilities over the next two decades: (1) power projection, (2) freedom of action in air, space, and cyberspace, (3) global situational awareness,

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(4) air diplomacy, and (5) military support to civil authorities (MSCA). There is also an underlying theme that runs throughout the study. Success—for the Air Force—will depend on the service's ability to integrate the application of American power through the air, space, and cyber domains. No longer is it possible to think or act principally in a single domain. Actors—friend or foe—who are most effective in operating across domains will achieve their objectives with greater frequency than those who remain stuck in a paradigm that is focused on a single domain.

Air Force Critical Capabilities 2020–2030

The geostrategic environment the United States will face in 2030 is certain to pose challenges that diverge significantly from those the nation and the Air Force face today. To begin with, the United States' focus is likely to continue shifting from Europe to Asia, which will require a greater emphasis on long-range power projection by the Air Force.[2] Defense of national interests in Asia—thought of by many as the twenty-first century's center of commerce and power—will double, in most cases, the distances the Air Force must fly to reach its primary operating areas. This challenge will require innovative thinking if the United States and the Air Force are to maintain regional influence during a time of expected stagnant or declining defense budgets. Continued success will likely come through the integration of cyber and space—particularly important in an Asia-centered world. With this brief description of the strategic landscape in mind, the following pages discuss each of the five capabilities determined to be most critical for the Air Force to develop or enhance between the present and 2030.

Power Projection

The United States faces humanitarian disasters, resource conflicts, terrorism, small-scale conventional conflicts, insurgencies, and the potential for peer conflicts. Flexible power projection is certain to prove critical to American success in these conflicts. In a global security environment marked by the proliferation of advanced antiaccess and area denial (A2/AD) systems, American forces will find it increasingly difficult to establish secure bases within striking distance of adversaries.[3] This will increase the demand for long-range power projection options. Successful power

projection is undoubtedly the most critical capability the Air Force will provide combatant commanders and the nation.[4]

For the Air Force, power projection can take many forms—as either hard or soft power. While power projection is synonymous with capabilities such as penetrating long-range strike, airlift, and aerial refueling, the future will also call for something new to the Air Force—offensive cyber capabilities. As the Air Force moves forward, the force structure—and, consequently, force-development programs—must change to emphasize these requirements, which will include integrating (manned and unmanned) air, space, and cyber capabilities. In other words, when formulating options to defend the nation's interests, Airmen should present choices that represent the full range of integrated capabilities.

This approach will position the service to capitalize on technological developments before and after 2030. Near-term changes in organization, doctrine, training, education, and force management will be required. For example, the current requirements of rated personnel (six-, nine-, and 12-year flying gates) make it difficult to provide opportunities for them to acquire skills in space or cyber fields during their formative operational years. Providing limited exposure to traditional Air Force operations for individuals in the space and cyber career fields similarly undermines their understanding of airpower. By 2030, Airmen operating in a joint environment will be expected to present comprehensive options that represent the full capabilities of the Air Force rather than presenting compartmentalized solutions.

The key strategic problem from the perspective of potential adversaries is to deny the United States access to bases and targets. The proliferation of robust and redundant air defenses is a legacy of the Cold War, but this has taken on new importance for adversaries. In the near term, most nations will be unable to compete with the United States' technological advantages in conventional combat. However, this will change as 2030 approaches. Future battlefields may look more like the recent Russo-Georgian conflict, in which a cyber offensive preceded Russia's conventional attack. Conflicts will be more specifically targeted in terms of time and space, and the first salvos of a conflict may not be detected until the second- and third-order effects of initial strikes manifest themselves.

Rather than relying solely on traditional integrated air defenses, adversaries will compete for control of the air by 2030 using integrated denial strategies informed by space- and cyber-based surveillance, reconnaissance,

and attack coupled with high-performance, stealthy radar and missile systems designed to complicate deployment and operations for American airpower. As noted in the recent *Quadrennial Defense Review Report*, "The future operational landscape could also portend significant long-duration air and maritime campaigns for which the US Armed Forces must be prepared."[5] In these increasingly dangerous scenarios, Air Force capabilities will experience increased stress. The Air Force must present strategic and operational choices along with forces capable of operating and prevailing in environments where adversaries have unprecedented capability to deny American forces access.[6] As one analysis noted, "The USAF's path remains that of betting that forward bases, which are falling increasingly within the reach of enemy ballistic missiles, cruise missiles, and other A2 [antiaccess] capabilities, can nonetheless be utilized by its expeditionary air units."[7]

Conventional power projection against peer or near-peer competitors will continue to shape Air Force requirements for the foreseeable future.[8] Four recommendations are offered to assist the Air Force in meeting power-projection requirements across the strategic planning space during the next two decades.

First, the Air Force must begin the process of fusing air, space, and cyber capabilities into existing and future platforms and systems. For example, aircraft currently rely on the global positioning system (GPS)—a space asset—and a range of cyber systems, but much more is possible at the individual platform level and in support of command and control. Integrating capabilities, both offensive and defensive, across the three domains will prove a key enabler and force multiplier over the coming decades. This suggests the need for systems, operators, and organizations that are capable of achieving effects in more than one domain.

Second, the service must continue to refine a flexible power-projection capability. For example, in a conflict with a peer competitor, where national sovereignty and vital interests are threatened, the calculus for determining an appropriate Air Force response is simple. However, in an irregular conflict where limited interests are at stake, determining the appropriate course of action is more difficult. With Air Force power-projection capabilities often serving as the single best tool available, options must be scalable. This presents a challenge that is proving difficult to overcome in present conflicts.

In an irregular conflict, two potentially divergent Air Force missions are possible: fighting as a member of the joint or coalition force or enabling partners to fight on their own.[9] The former requires traditional airpower

assets. In the latter, the Air Force can leverage tools such as training, education, and assistance. The Air Force needs to develop "general purpose" forces accustomed to operating with allies in ways not often considered part of the service's power projection role.[10] Preserving combat capabilities for major contingencies will require greater investments in irregular warfare capabilities today. As Afghanistan and Iraq have demonstrated, the Air Force's most capable aircraft are not always necessary in an irregular conflict. By developing the appropriate capabilities for this mission, the service can achieve significant cost savings and preserve the utility of the nation's most capable aircraft.

Third, developing unmanned platforms that are enhanced by artificial intelligence—enabling autonomous operations—will support the Air Force conventional power projection mission. Such systems may prove critical psychological tools in peer competition, where an adversary may view the employment of such systems as a reason to cooperate with the United States. Extending the range and loiter time of existing and future platforms will have a similar effect.

Improving the range of air-breathing platforms will also delay or prevent the compromise of one of airpower's greatest advantages: the ability to operate from secure locations outside an adversary's reach. As American forces withdraw from Iraq and eventually Afghanistan, there will be a greater focus on Asia. Thus, the likely continuing drawdown in overseas forces and the number of OCONUS main operating bases must be offset not only through a closer relationship between the Air Force and Navy, but with long-range power-projection systems capable of holding targets at risk without access to nearby bases.

Fourth, offensive and defensive cyber capabilities must be fused into air and space platforms. By 2030 cyber capabilities may become the greatest power-projection tools in the Air Force arsenal, serving as both force multipliers and an Achilles' heel. Several nations are clearly equal to or ahead of the United States in their ability to launch cyber attacks. Despite the Air Force's attempts to organize, train, and equip to meet cyber requirements, its ability to conduct robust cyber operations remains a potential but not assured capability. As the discussion turns to the freedom of action in air, space, and cyberspace, these same challenges are present.

Freedom of Action in Air, Space, and Cyberspace

Although the previous section called for the integration of air, space, and cyber for the sake of improving power-projection capabilities, freedom of action in air, space, and cyberspace is not limited to playing a role in power projection. In other words, the five capabilities are neither mutually exclusive nor always complementary. This point is worth noting as the discussion turns to the continuing importance of air superiority.

Air

Access to and stability within the global commons (space, air, sea, and cyber domains) is critical to national security.[11] The objective of air superiority focuses on a subset of the larger challenge of access to all the global commons and ensuring access to the air domain at places and times of America's choosing. Air superiority also encompasses the ability to use the air domain to observe potential adversaries through reconnaissance and surveillance and then hold important targets at risk to influence outcomes in a way that is favorable to the United States.

Over the coming decades significant advances in air superiority are possible in the areas of autonomous systems and augmentation of human performance.[12] This may include stealthy, high-performance, autonomous aircraft that augment the numbers and capabilities of fifth-generation fighters and replace the lost contribution of legacy fighters relegated to supporting roles, "building the foundation provided by F-22s and F-35s" before they are phased out.[13]

Augmenting human performance can "achieve capability increases and cost savings via increased manpower efficiencies and reduced manpower needs."[14] This will prove useful as weapon systems become increasingly complex and dependent on advanced man-machine interfaces. It is reasonable to expect remotely piloted aircraft (RPA) to evolve into truly autonomous aircraft, increasing the number of air superiority missions and supporting tasks such platforms perform.

Improvements in the man-machine interface will continue to progress in speed, range, aerodynamic performance, sensor capabilities, information processing, and decision making. Current examples include infrared sensors to see at night, radar to see through weather, and computer interpretation of GPS signals for navigation. By 2030, the amount of information to be analyzed, the number of decisions to be made, and the rate at which they must be made will increase dramatically and further exceed

human capabilities, requiring significantly more capable man-machine systems.[15]

With the F-22 and F-35 likely to serve as the nation's principal air superiority platforms until 2030 and a reduction in the purchase of F-35s likely, relatively inexpensive force multipliers such as autonomous unmanned platforms, human-computer enhancements, and cyber-attack capabilities may become more important.[16] Along with the competing need for capital investment in long-range strike, there is a real need to recapitalize the nation's conventional and nuclear strategic defense systems. Thus, inexpensive force multipliers should be a focus of air superiority development. One such option is an aircraft-mounted cyber-attack system with the ability to penetrate and disrupt the software of an adversary's aircraft, radar, and other systems. However, cyber is an area where the United States has the slimmest advantage over some adversaries. Cyber is not a magic bullet, but an area where investments may pay significant dividends.

Adversaries of the United States are continuously developing new means of challenging American air superiority. Denying their success will require that the Air Force continually adapt to improving systems and changing tactics, techniques, and procedures. This will become increasingly difficult as competition for research and development dollars grows over the next two decades. As with air, space presents a distinct set of challenges.

Space

As a pioneer and leader in the use of space, the United States is more reliant on the domain than any other nation. Recognizing the significance of space, on 28 June 2010 the Obama administration issued a new space policy declaring that "the United States will employ a variety of measures to help assure the use of space for all responsible parties, and, consistent with the inherent right of self-defense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them."[17] To achieve this national priority, the Air Force must gain space superiority, a concept not unlike air or cyber superiority. Currently, however, the United States cannot maintain space superiority. Thus, the principal objective over the next 20 years must be to exert control over space in a way that turns the concept of space superiority into a reality.

While space is unlikely to become a domain through which kinetic effects are delivered in the near term, challenges to American preeminence

may accelerate deployment of weapons in space—dramatically altering the existing paradigm. Denying space to the United States would significantly degrade its civil and military operations in all domains. Events such as an attack on a communication, navigation, or detection constellation could drive a demand for weaponization by the American public, which would require the Department of Defense (DoD) to respond aggressively.

A successful strategy to delay the weaponization of space and maintain freedom of action in the domain will require that the United States use the entire spectrum of diplomatic, information, military, and economic capabilities to develop a multilayered construct for space operations. By masking the United States' space center of gravity, an adversary is placed in a defensive position. However, space superiority does not begin with a military solution. It starts with the United States taking the lead in engaging the international community to create a system of protocols and relationships that encourages beneficial and benign behavior. Through economic and technical cooperation such as trade and multinational research and development, nations become interdependent and much less likely to act against their own interests.[18]

Partnering also lays the foundation for international negotiation, regulation, and governance by the rule of law—powerful concepts appreciated by our allies. Currently, the United States is party to a series of international regulations governing land, sea, air, and space. A new round of international agreements could institutionalize a ban on space-based weapons and provide for verification, which many nations may well find attractive. Alone, this vision of cooperation and engagement is insufficient.

Gaining freedom of action in space over the coming decades must start with developing and implementing a comprehensive strategy. The Air Force should ensure that the nation's current space vulnerabilities do not lead to a premature and economically prohibitive strategy, or worse, spark a weapons race in space. Thus, the Air Force must tread carefully as it protects the nation's vital space interests. Four recommendations will assist the service in developing sustainable space superiority.

First, the Air Force must continue to improve American surveillance of space. A first step in correcting this deficiency was the 25 September 2010 launch of *Pathfinder*, the first satellite in a planned constellation. Known as the space-based space surveillance (SBSS) system, its mission is to improve the DoD's ability to detect and track objects in Earth orbit. To maximize its capabilities the Air Force must expedite deployment of

SBSS—or an SBSS–like constellation—and integrate it into a coherent architecture that will detect objects in both low and high Earth orbit.[19]

Second, the Air Force must guarantee access to space while achieving lower production and operating costs. While the Air Force has a rich spacefaring history, it does not have a reputation for responsive launch. Special handling requirements for lift vehicles and satellites require months or years of planning for an on-time launch. The primary space-launch vehicles in use today are evolved expendable launch vehicles (EELV)— Boeing's Delta IV family and Lockheed Martin's Atlas V family. The EELV was designed to standardize and improve space-launch operability, reduce the government's traditional involvement in launch processing, and save a projected 25 percent over legacy launch systems.[20] However, further reductions in cost are required.

Third, increased partnering with industry will also assist in reaching the goal of space superiority. The private sector has made great strides in space development over the past 20 years. SpaceX successfully launched light- and medium-lift vehicles in Falcon 1 and Falcon 9, reducing costs compared to their Boeing and Lockheed Martin rivals.[21] The Obama administration's most recent decisions on space operations, shifting spending from government projects to commercial endeavors, point to potentially dramatic changes in American space policy.[22]

Fourth, to mitigate vulnerability in space, the United States must establish greater resiliency in its satellite constellations. Space systems must become more responsive *and* less vulnerable to meet the war fighter's needs as competition in space evolves. The DoD has long relied on large, expensive satellite systems to meet its needs. The launch of the Defense Satellite Communications System (DSCS) follow-on, Wideband Global System (WGS), is an example of this good-news-bad-news story. While each WGS satellite is more capable than the entire nine-satellite DSCS constellation, the planned six-satellite WGS constellation increases US space vulnerabilities by placing greater reliance on a reduced number of satellites.[23] With space serving as a critical means of transmitting data, a loss would have a serious negative impact on cyber.

Cyber

Although the recently published AFDD 3-12, *Cyberspace Operations*, notes that "controlling the portion of cyberspace integral to our mission is a fundamental prerequisite to effective operations across the range of military

operations,"[24] cyber is not traditionally recognized as an operational military domain. With the activation of Twenty-fourth Air Force, the service sent a clear signal regarding the importance of cyberspace. The transformation of the communications and information career fields into the cyberspace operations and support career fields and the initiation of undergraduate cyberspace training also illustrated the elevated role that service leaders expect cyber capabilities to play in the future.[25] The challenge for the Air Force lies in remaining on the leading edge of advances in cyber technology.

Cyber superiority will become ever more difficult to achieve and maintain as cyber continues to act as a leveler among nations, groups, and individuals. Thus, the Air Force must advance to the leading edge of cyber.[26] Unfortunately, the number of American computer science and computer engineering graduates is shrinking while the proportion of foreign nationals receiving master's degrees and PhDs is increasing.[27] Current Air Force cyber training falls far short of providing experts capable of dealing with the threats that will come from highly trained and motivated attackers. This is a strategic concern because shortfalls in cyber capabilities undercut capabilities in other domains. The United States has rarely faced a situation in which military success depends on successful operations in a domain that it does not dominate. This is the case with cyber.

The cyberspace of 2030 will differ dramatically from that of 2010. Increases in computing power, doctrinal development, and changes in the focus of cyber attacks will make cyberspace more challenging and hostile. Cyber attacks will continue and become more relevant to military operations. In the future, cyber will evolve into a weapon of preference, replacing many of the kinetic choices in today's arsenal. The reduction in aircraft numbers and the ranges required for power projection, particularly in the Pacific, will drive cyberspace to the forefront of Air Force operations. Suppression of enemy air defenses and the ability to corrupt the software of an adversary's aircraft will become a reality, not just science fiction.

US Strategic Command (STRATCOM) is likely to find itself more deeply involved in cyberspace, expanding its operations into irregular warfare. The Air Force, while "growing its own," must also find ways to partner with academia and industry to augment its cyber force structure. These partners may not fit the mold of a traditional Airman, but their expertise will prove invaluable to accomplishing the Air Force mission.

Over the next 20 years, the cyber threat will compel the Air Force to play a leading role in defending the nation's interests. Preparing for this

future will require an unprecedented shift in the service's approach to cyber. Simply defending the network is not enough. The Air Force should undertake a more aggressive approach to developing cyber as a critical operational capability. This will require the service to undertake two principal efforts.

First, the Air Force must assume the mantle of responsibility for cyber activities as they relate to accomplishing Title 10 responsibilities. With the greatest dependence on cyber of any service, the Air Force must rely on itself for most of its cyber needs. Accomplishing this objective will require the service to operationalize cyberspace by preparing to conduct offensive as well as defensive cyber operations, develop a sound legal framework for operations, create broad interoperability, and aggressively work toward joint operations. For example, if the Air Force assumes responsibility for cyber functions directly related to its operations—some of which are performed by the National Security Agency (NSA)—the emphasis will shift from information security to operational effects.

Second, to operationalize cyberspace, the Air Force must develop a large cadre of educated experts in computer science and computer engineering (CS/CE). Because of changes in the United States' CS/CE graduate base, the Air Force faces formidable obstacles by 2030. The best people will be able to command salaries far beyond what the Air Force and the DoD offer, exacerbating this dilemma. Failure to overcome the manpower obstacle will undermine the Air Force's ability to maintain a cyber-proficient workforce and threatens the accomplishment of core Air Force missions. One way for the service to acquire the needed cyber expertise is to develop it internally, a path it is currently taking. Incentives like career specialization pay, scholarships, or bonuses can help attract and retain the best and the brightest. Whatever course the Air Force takes, it is important to remember that the interdependence of the air, space, and cyber domains makes a failure in one domain a failure in all domains.

Global Situational Awareness

The drive to 2030 is likely to include a continued drawdown of American troops permanently stationed overseas. The Air Force will likely operate primarily from CONUS locations.[28] Thus, situational awareness will become a long-distance endeavor requiring long transit and loiter times to perform surveillance and reconnaissance missions during a wide variety of

operations. The distance will also place a premium on cyber and space assets, which are likely to play an increasingly important role in building a situational awareness across far-flung regions. For example, where a drone may prove effective in uncontested airspace, cyber and space assets may be the only means of conducting surveillance and reconnaissance of peer competitors. For the United States, understanding the circumstances it faces is increasingly critical as decision makers operate in a more complex geostrategic environment.

Although the term *global situational awareness* is mentioned in AFDD 2-9, *Intelligence, Surveillance, and Reconnaissance Operations*, it is not defined in doctrine or elsewhere.[29] Thus, the development of a definition is necessary. Accordingly, global situational awareness is the understanding of the strategic, operational, and tactical environments gained through the use of space, air, sea, land, and cyber information collection systems.[30] The Air Force contribution to global situational awareness comes in the form of surveillance, reconnaissance, and analysis of data.

Since the Air Force currently has few surveillance and reconnaissance aircraft capable of covering the long distances required in a future where operations originate in the CONUS, space and cyber surveillance will play an increased role in future efforts. RPAs and autonomous platforms with longer ranges and correspondingly longer loiter times should, however, be fielded before 2030. Until their development, space and cyber assets must fill the void.[31]

Two characteristics of future space surveillance systems are critical: they must be persistent and inexpensive. The current inventory is expected to suffice well into the next decade, but the United States will require newer systems before 2030. Moreover, the concept of operationally responsive space must continue to include the ability to launch surveillance and reconnaissance payloads virtually on demand. The technical difficulties of tracking mobile targets from space also must be resolved over the next two decades.[32]

The focus on space does not mean that air-breathing platforms will become unimportant to global situational awareness. These platforms will present a different set of problems. For example, building a survivable reconnaissance platform from scratch or adapting the F-22, for example— solely for the reconnaissance mission—is not feasible in a fiscally constrained environment. The Air Force will have to make do with what is already in the inventory for the next decade or more. Given these circum-

stances, the mantra "every shooter is a sensor and every sensor is a shooter" has merit.[33]

The mission of analysis is equally important to surveillance and reconnaissance. The exploitation of reconnaissance products, particularly imagery analysis, has enjoyed a renaissance because of the creation of the distributed common ground system (DCGS) and its refinement into an agile analysis and dissemination system. Since it already operates with a reachback approach of distributed operations, the DCGS enterprise can be readily adapted to the global situational awareness concept necessary in the future.[34]

Increasing the speed of product dissemination is critical and is possible through the DCGS enterprise. However, absent the development of improved software, analysis will remain time-consuming because of the sheer volume of data and the ever-present shortage of trained analysts.[35] Sustaining a *sufficient* cadre of analysts over the next 20 years and automating many analytical tasks will assist in overcoming current deficiencies in quality and speed.[36]

Although globalization and technological advances are bringing people and nations closer together, they are making the world a more complex and expansive place for the Air Force. Nowhere will the nation feel the impact more than in situational awareness. With the Air Force traveling greater distances and facing geographically unconstrained threats, maintaining situational awareness is already becoming increasingly difficult.

To execute the situational awareness mission effectively, the Air Force's intelligence community must complete its metamorphosis into a tightly organized and dynamic force that realigns its assets for global as well as regional coverage. Implementing the following recommendations will assist in this transition.

First, overhead capabilities must be planned and executed in coordination with the National Reconnaissance Office (NRO) because surveillance is increasingly becoming a stand-off capability—making the NRO's responsibility for space asset requirements increasingly important. As part of this effort, Air Force intelligence personnel should be assigned to the NRO in sufficient numbers and with sufficient rank to influence design and implementation of programs and to provide an operational perspective from the end user. Currently, the Air Force does not always fill existing billets at the NRO. Similarly, a growing dependence on second- and third-party surveillance—since these parties are often closer to targets—will call for

exchange programs with allies and civilian partners as part of the larger effort to influence the product received by the end user.

Second, it is time to plan for a postwar (Afghanistan and Iraq) surveillance and reconnaissance structure that addresses the DCGS. Serious thought must be given to doctrine, tactics, techniques, and procedures as the DCGS' role in any future fight is reconsidered. Currently configured and manned for tactical missions, the service must shift the DCGS' focus to processing and disseminating national and allied intelligence products.

Third, the Air Force must exploit emerging automation technologies to improve data analysis so that human analysts are employed in the highest-order tasks. Accelerated development of translation software, artificial intelligence, and electronic means to process raw data—signals and electronic intelligence—is the most practical approach to managing this glut of data and should become an Air Force funding priority.

Absent significant reforms that focus on the increasing globalized nature of strategic challenges, the Air Force's contribution to national situational awareness will not reach its full potential. At a time when adversaries are chipping away at the nation's strategic advantage, failing to understand an adversary is unacceptable. Meeting this challenge can also be aided by the fourth capability—air diplomacy.

Air Diplomacy

Although the concept of air diplomacy is neither defined in doctrine nor specified as a mission of the Air Force, it is a task Airmen have performed since the early days of manned flight. Air Force history has many examples of Airmen conducting diplomatic missions, such as the Berlin airlift (24 June 1948–12 May 1949), Operation Provide Comfort/Northern Watch (1991–2003), and the ongoing training of Latin American air forces at the Inter-American Air Forces Academy (IAAFA). These examples are a small portion of the Air Force's historical contributions to American diplomacy.[37]

Currently, the Air Force conducts an array of diplomatic missions established in the Air Force Security Cooperation Strategy and many additional irregular and ad hoc diplomatic missions. While the service currently employs airpower to achieve soft-power objectives, these efforts are not optimally leveraged to the full benefit of the nation.[38] Thus, fusing the service's disparate soft-power missions into a unified air diplomacy strategy will enable the Air Force to employ its soft-power capabilities more effectively

in the pursuit of national interests. Some further clarification of the concept is necessary.

Diplomacy, broadly defined, is "the peaceful conduct of relations amongst political entities, their principals and accredited agents."[39] States conduct diplomacy to promote economic interests, protect citizens abroad, propagate culture and ideology, enhance national prestige, promote friendship, and isolate adversaries. Moreover, it is the least expensive way to exercise power in international affairs.[40] Diplomacy is one of foreign policy's two elements; the other being war. Both are means to an end rather than ends in themselves.

Air diplomacy may best be described as the nonkinetic employment of airpower in defense of national interests. While all forms of diplomacy are designed to further state interests, air diplomacy is distinguished by the means employed to promote those interests. It is important to note air diplomacy does not replace the traditional diplomacy conducted by the Department of State. It is a complementary capability provided by the Air Force. Understood in these terms, air diplomacy incorporates a broad range of Air Force soft-power capabilities into a unifying concept that highlights the service's diplomatic capabilities.

Over the next two decades air diplomacy has the potential to become increasingly important for three related reasons. First, Medicare, Medicaid, Social Security, and the national debt will consume an expanding percentage of the federal budget, which will force decision makers to reduce discretionary—principally defense—spending while remaining engaged in the international system.[41] Second, stagnant or declining defense budgets will make acquisition of new weapons less likely. People and machines capable of performing both hard- and soft-power missions will undoubtedly have the greatest appeal.[42] Third, airpower's range, speed, and flexibility will make it an attractive option for decision makers. Air diplomacy provides a range of soft-power options that, if employed before kinetic operations are necessary, may assist in preventing or resolving crises.

Simply stated, air diplomacy has the potential to be an effective approach to the defense of vital national interests, building partnerships, preventing conflict, and expanding American influence around the world. It is also a cost-effective approach that does not create the anti-American sentiment which accompanies permanent overseas bases or large troop deployments. Admittedly, it will not always succeed. But, the deliberate conduct of air diplomacy has the potential to leverage the Air Force's soft-

power capabilities more effectively before the service is called on to exercise hard power.

While the current Air Force Security Cooperation Strategy provides an excellent foundation upon which to build, an air diplomacy strategy that includes all of the service's diplomatic capabilities is necessary.[43] This is particularly important when fiscal constraints force decision makers to choose among competing priorities. Conceptually, air diplomacy also provides a construct that supports the nation's soft-power options. Devising an air diplomacy strategy is best accomplished by implementing three broad recommendations.

First, an air diplomacy strategy should focus on three central goals. It must coordinate and enhance disparate diplomatic missions; develop a proactive approach to engaging allies, neutrals, and adversaries—all within the context of each geographic commander's theater security cooperation plan; and accomplish strategic ends with existing means.

Currently, the Air Force lacks a unifying strategy capable of effectively leveraging *all* of the soft-power missions it performs. As noted previously, the Air Force Security Cooperation Strategy focuses many of the Air Force's train, advise, and assist missions into a unified strategy, but there are potential opportunities not included.[44] An air diplomacy strategy should also incorporate soft-power missions that are critical to the long-term objectives of the Air Force (access to bases, for example), but well beyond the near-term objectives of the geographic combatant commander.

Second, the Air Force should build on the foundation of existing strategic guidance, programs, plans, and approaches related to diplomatic action. This will simplify the process of creating a service strategy. With national, departmental, and service guidance found in a number of documents, it is not necessary to start from scratch when developing an air diplomacy strategy.[45] Additionally, any strategy must also create a set of guidelines for measuring the success or failure of air diplomacy.[46]

Third, bringing contributors together for the development of a strategy— accepted by key actors—is necessary. Participants should include such actors as the Department of State, the Office of the Secretary of Defense, combatant commanders, the Office of the Secretary of the Air Force for International Affairs, Air Staff components, and the major commands. If excluded from the development process, those affected by an air diplomacy strategy may not support its implementation.

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The combination of hard- and soft-power capabilities outlined thus far is incomplete without the third component—military support to civil authorities (MSCA). By providing the nation the ability to persuade allies and adversaries through air diplomacy, strike adversaries through power projection, and defend the homeland through MSCA, the Air Force will provide the nation a set of critical capabilities to 2030 and beyond.

Military Support to Civil Authorities

Military support to civil authorities is becoming increasingly important because of the proliferation of nuclear weapons technology, advanced missile technology, and offensive cyber capabilities. Current capabilities for disaster response are also insufficient to meet demands. This combination of variables is certain to make MSCA a critical capability for the Air Force well into the future. Admittedly, a natural disaster is more likely than a major terror attack, but in either case the Air Force and the Air National Guard (ANG) can expect to play major roles in providing the US Northern Command (NORTHCOM) a range of capabilities to mitigate the effects of a catastrophic event.[47]

AFDD 2-10, *Homeland Operations*, cautions that USAF forces "are only made available when not required by other military operations."[48] Air Force Instruction (AFI) 10-802, *Military Support to Civil Authorities*, states that ANG forces (on state orders, not in federal service) have the "primary responsibility for providing military assistance to state and local governments in civil emergencies."[49] In short, the ANG not only can respond well ahead of any federal military effort, but is also expected to do so by Air Force instruction.[50] Short of a man-made catastrophe involving chemical, biological, radiological, or nuclear materials, it is unlikely that active duty resources will be called upon. Nevertheless, if a disaster rises to the level of a catastrophe, state and local resources may be overwhelmed. Governors are likely to ask for federal assistance, which may or may not be readily available because of Air Force decisions.[51]

The challenging economic environment that will persist well into the future is certain to amplify the importance of Air Force and ANG military support to civil authorities. If the nation's interests continue to shift and technological innovations bring America's adversaries closer to its shores, the American public will expect the military to focus on missions such as homeland defense and disaster relief. For the Air Force and the ANG, this

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means providing MSCA capabilities in three areas: situational awareness, medical support, and airlift.[52]

Given the Air Force's role in shaping the ANG through its organize, train, and equip responsibilities, it is vital for service leaders to elevate MSCA to a critical capability.[53] Dual designed operational capability (DOC) statements, particularly for the ANG, will assist in establishing the role of individual units in MSCA and wartime. In other words, the Air Force and ANG roles in providing MSCA are intertwined and inseparable. Thus, any discussion of the ANG role in MSCA is also a discussion of the Air Force role.

The Air Force and ANG can contribute to building a more resilient domestic response capability. However, there is significant reason for concern. Today's total force approach may prove inadequate in the event of a major disaster in the United States—with speed of response the principal concern.[54] Thus, a renewed focus on MSCA will better serve the nation. Given the interconnected nature of the MSCA mission, three recommendations will enable the Air Force and the ANG to improve disaster response while maneuvering through a difficult legal, political, and command and control environment.

First, airlift aircraft should form the bulk of the Air National Guard's future unit structure. First-response airlift is a key enabler and will likely come from the ANG. Thus, a focus on airlift will enable the ANG to not only provide military support to civil authorities, but to perform a valuable wartime mission as well. Embedded within each ANG airlift unit must be aerial port capabilities to provide staging expertise for follow-on operations.

As part of a focus on airlift, ANG airlift units should include medical support units, which are the most critical and long-lasting components of MSCA. They are often required before anything else and must continue long after any disaster. As the Air Force's "first responder," the ANG should be postured to fill this quick-response role.

Second, beddown of all future ANG airlift units should be aligned among the 10 Federal Emergency Management Agency (FEMA) regions. Aligning ANG airlift units among FEMA regions will allow these units to exercise with state and local first responders in disaster scenarios and establish strong relationships before a disaster occurs.[55]

Third, ANG imagery analysts should become the primary source of support, advice, liaison, and imagery interpretation for state and local

officials within each FEMA region. They should be an integral part of future MSCA exercises and remain on call for domestic disaster support. Gaining situational awareness of a disaster's dimensions is a crucial step in dealing with it. As part of this effort to improve situational awareness for first responders, distributed common ground system stations staffed by ANG analysts should be used to provide real-time imagery support in the event of a disaster, and their DOC statements should be amended to add MSCA. Codifying this mission will allow ANG units to exercise with local and state disaster entities as well as provide a framework for oversight, funding, and inspection.

By implementing these recommendations, the Air Force active and ANG units remain poised to effectively respond in the event of a disaster. Defense of the homeland is, at its most fundamental, the very reason for maintaining a military.

Conclusion

As the Air Force looks toward a future that will be characterized by turbulence and rapid change, service leaders must make a number of difficult decisions well in advance of an eventual need. Confronted by uncertainty, flat defense budgets, and threats at the high and low ends of the conflict spectrum, current decisions that will shape the future of the Air Force must account for an increasingly complex array of variables. Success in this environment is not assured and should not be taken for granted. By suggesting the service focus on five critical capabilities (power projection; freedom of action in air, space, and cyberspace; global situational awareness; air diplomacy; and military support to civil authorities), this article seeks to both clarify the areas where the service should focus its time, resources, and strategic thought. It also highlights a persistent challenge. It is the responsibility of the Air Force to articulate a clear rationale for investing in airpower. Strategy development enables this fundamental task. **SSQ**

Notes

1. John Shaud, *Air Force Strategy Study 2020–2030* (Maxwell AFB, AL: Air University Press, 2010). Appendix A provides a discussion of national interests. Appendix B provides an environmental scan (trends) and a discussion of the research methodology that was used. Appendix C includes the four scenarios (peer competitor, rising or resurgent power, failed state, and jihadist insurgency).

2. Morton Abramowitz and Stephen Bosworth, "Adjusting to the New Asia," *Foreign Affairs* 82, no. 4 (July–August, 2003), 119–31; Jonathan Pollack, "US–Asia Pacific Strategy in the Obama Administration," in *American Foreign Policy: Regional Perspectives* (Newport, RI: Naval War College Press, 2009), 101–10; and Evan Medeiros, "The New Security Drama in East Asia: The Response of US Allies and Security Partners to China's Rise," in *American Foreign Policy*, 111–24.

3. Mark Gunzinger and Jim Thomas, *The 2010 Quadrennial Defense Review: An Initial Assessment*, Center for Strategic and Budgetary Analysis Backgrounder, February 2010, http://www.csbaonline.org/4Publications/PubLibrary/B.20100201.The_2010_QDR_An_In/B.20100201.The_2010_QDR_An_In.pdf.

4. Andrew Krepinevich, Barry Watts, and Robert Work, *Meeting the Anti-Access and Area-Denial Challenge* (Washington: Center for Strategic and Budgetary Analysis, 2003), http://www.csbaonline.org/4Publications/Archive/R.20030520.Meeting_the_Anti-A/R.20030520.Meeting_the_Anti-A.pdf; and Sam J. Tangredi, "The Future Security Environment 2001–2025: Toward a Consensus," in *American Defense Policy*, ed. Paul Bolt et al. (Baltimore: Johns Hopkins University Press, 2005), 48–65.

5. Secretary of Defense Robert Gates, *Quadrennial Defense Review Report* (Washington: DoD, February 2010), vi, http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf; and Andrew S. Erickson and David D. Yang, "On the Verge of a Game-Changer," *Proceedings* 135, no. 5 (May 2009): 26–32, http://www.usni.org/magazines/proceedings/2009-05/verge-game-changer.

6. A recent Office of the Secretary of Defense (OSD) report to Congress on Chinese military capabilities assessed China's antiaccess and area-denial capabilities as moving toward building a credible force that could threaten operations and forces as far away as Guam. See OSD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2010* (Washington: OSD, 2010)*,* 29–39, http://www.defense.gov/pubs/pdfs/2010_CMPR_Final.pdf.

7. Krepinevich, Watts, and Work, *Meeting the Anti-Access and Area Denial Challenge*, 20.

8. A 2005 report noted, "US military strength is built on a foundation of technological superiority that grew from a position of global leadership in relevant technologies and innovative capabilities. That leadership position is no longer assured. The synergistic forces of globalization and commercialization of science and technology are providing current and future adversaries with access to advanced technologies as well as the expertise needed to exploit those technologies." Committee on Defense Intelligence Agency Technology Forecasts and Reviews, Division on Engineering and Physical Sciences, *Avoiding Surprise in an Era of Global Technology Advances* (Washington, DC: National Academies Press, 2005), 1. More recently, another defense analyst observed, "It is important here to note that as the pace of innovation may be slowing for the United States, American competitors may be catching up. For example, in coming years China could gain the ability to use large numbers of precision submunitions launched from maneuverable ballistic missile reentry vehicles. These could, in theory, make it quite impractical to use airfields lacking hardened shelters; and even those with shelters could have their runways threatened." Michael E. O'Hanlon, *The Science of War* (Princeton, NJ: Princeton University Press, 2009), 184.

9. John Shaud, *In Service to the Nation: Air Force Research Institute Strategic Concept for 2018–2023* (Maxwell AFB, AL: Air University Press, 2008), 7.

10. See, for example, Robyn Read, "Effects-Based Airpower for Small Wars: Iraq after Major Combat," *Air and Space Power Journal* 14, no. 1 (Spring 2005): 103–12, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj05/spr05/read.html.

11. Michèle Flournoy and Shawn Brimley, "The Contested Commons," *Proceedings* 135, no. 7 (July 2009): 3.

12. Werner J. A. Dahm (chief scientist, USAF), *Report on Technology Horizons: A Vision for Air Force Science and Technology during 2010–2030*, vol. 1 (Washington: Department of the Air Force, 15 May 2010), 6.

13. Robbin Laird, "Combat Air Power: The Need for a New Path: A Conversation with General Corley about the Future of Air Power," *Second Line of Defense*, August 2010, http://www.sldinfo.com/?p=11608.

14. Dahm, *Report on Technology Horizons*, 6, 41.

15. Ibid., 60.

16. Government Accountability Office (GAO), *Joint Strike Fighter: Additional Costs and Delays Risk Not Meeting Warfighter Requirements on Time* (Washington: GAO, 2010).

17. The White House, *National Space Policy of the United States of America* (Washington: White House, 28 June 2010), 3.

18. John Oneal and Bruce Russett, *Triangulating Peace* (New York: W. W. Norton, 2001).

19. 30th Space Wing Public Affairs, "Vandenberg Launches Minotaur IV," 26 September 2010, http://www.vandenberg.af.mil/news/story.asp?id=123223753.

20. 30th Space Wing Public Affairs, "Evolved Expendable Launch Vehicle (EELV)," http://www.vandenberg.af.mil/library/factsheets/factsheet.asp?id=5207.

21. Siemens PLM Software, "Case Study: SpaceX Delivers Outer Space at Bargain Rates," 15 September 2010, http://www.plm.automation.siemens.com/en_us/about_us/success/case_study.cfm?Component=30328&ComponentTemplate=1481.

22. Kenneth Chang, "Obama Calls for End to NASA's Moon Program," *New York Times*, 1 February 2010.

23. Ed White and Andy Roake, Air Force Space Command Public Affairs, "First Wideband Global SATCOM Satellite Goes Operational," 29 April 2008, http://www.stratcom.mil/news/article/38/first_wideband_global_satcom_satellite_goes_operational.

24. AFDD 3-12, *Cyberspace Operations*, 15 July 2010, http://www.dhs.gov/files/cybersecurity.shtm.

25. David S. Alberts et al., *Understanding Information Age Warfare* (Washington: Command and Control Research Program (CCRP) Publication Series, 2001); Alberts and Daniel S. Papp, eds., *Information Age Anthology*, vol. 1, *The Nature of the Information Age* (Washington: CCRP Publication Series, 2001); Alberts, J. J. Garstka, and F. P. Stein, *Network Centric Warfare: Developing and Leveraging Information Superiority* (Washington: National Defense University Press, 1999); and Alberts, *Information Age Transformation: Getting to a 21st Century Military* (Washington: CCRP Publication Series, 2003).

26. Ibid.

27. Computing Research Association, *Taulbee Survey of US Computer Science and Computer Engineering Graduate Programs*, (1974–2009).

28. Stephen J. Hagel, Adam B. Lowther, and Chad L. Dacus, *The Future of Global US Air Force Basing 2010–2040* (Maxwell AFB, AL: Air Force Research Institute, 2010), 60.

29. AFDD 2-9, *Intelligence, Surveillance, and Reconnaissance Operations*, 17 July 2007, 24.

30. Jeffrey Horne, "Transforming National Space Security: Enabling DoD and Intelligence Community Defensive Space Control Collaboration," *High Frontiers* 4, no. 4 (August 2008): 15–16; DHS, "DoD, DHS and DOJ Co-Sponsor a Critical Incident Preparedness Conference for First Responders," *NIPP [National Infrastructure Protection Plan] Newsletter* 38 (November 2008), 3; and Maryann Lawlor, "Covering the Six for Homeland Joint Operations," *SIGNALonline*, May 2009.

31. Add airships to the list of long-loiter assets in development for surveillance missions. Development is expected to take years beyond the first prototypes. David Pearson, "Airships Receive Lift from New Technology," *Wall Street Journal*, 27 August 2010, B-8. Moreover, those systems that are serving so well in the CENTCOM area of responsibility (AOR) can form the basis for a CONUS–based homeland defense/homeland security program along our borders in the outyears and for use in disaster response as well.

32. In an interview with staff members of the Air Combat Command (ACC) Directorates of Intelligence (A2), Air and Space Operations (A3), Plans and Programs (A5), and Requirements (A8) in June 2010, several individuals commented on the inability of satellite imagery to react to even the slightest modifications of targets, referring to how "a little aluminum foil" could change the shape of an object on the ground and "mess up" a satellite's ability to discriminate targets via its moving target indicator. Unattributed interview by the author, Air Combat Command, Langley AFB, VA, 22 June 2010. (All interviews were conducted in confidentiality, and the names of interviewees are withheld by mutual agreement.)

33. Although this expression has been used for a number of years, it most recently appeared in Department of the Air Force, *Lead Turning the Future: The Vision and Strategy for United States Air Force Intelligence, Surveillance and Reconnaissance* (Washington: Headquarters USAF, 2010), 19.

34. Air Force ISR Agency, "Air Force Distributed Common Ground System," *AF.mil*, 31 August 2009, http://www.af.mil/information/factsheets/factsheet.asp?id=15433.

35. At present, the entire DCGS enterprise is being criticized by the Army for not having a sense of the fight since it operates from afar. To that end, the DCGS community is preparing an expeditionary-like unit to process data in-theater to more quickly satisfy commanders' needs and to get a sense of the fight. Some interviewees amplified their remarks, stating that due to long lag time in stateside processing, Marine users in the AOR have stated that if the data is over three days old, they do not want it. ACC staff members, interview.

36. Jim Hodges, "The Get-Well Intel Plan," *C4ISR Journal*, 1 January 2010, http://www .c4isrjournal.com/story.php?F=4411944. In the interim, Air National Guard personnel and Air Force Reserve individual mobilization augmentees (IMA) have performed thousands of days of active duty per year to support the effort.

37. Roger G. Miller, *To Save a City: The Berlin Airlift, 1948–1949* (Washington: Air Force History and Museums Program, 1998). See also "Inter-American Air Forces Academy," Lackland AFB website, http://www.lackland.af.mil/IAAFA; and Michael Knights, *Cradle of Conflict: Iraq and the Birth of Modern U.S. Military Power* (Annapolis, MD: Naval Institute Press, 2005), 217–30.

38. See Jennifer D. P. Moroney et al., *International Cooperation with Partner Air Forces* (Washington: Rand Publishing, 2009), 9; Gordon England, *Building Partnership Capacity: QDR Execution Roadmap* (Washington: DoD, 2006); and Bruce Lemkin, *Global Partnership Strategy* (Washington: DAF, 2008).

39. Keith Hamilton and Richard Langhorne, *The Practice of Diplomacy: Its Evolution, Theory, and Administration* (London: Routledge, 1995), 1. Hedley Bull offers a similar definition, suggesting that diplomacy is "the conduct of relations between states and other entities with standing in world politics by official agents and by peaceful means." Bull, *The Anarchical Society: A Study of Order in World Politics*, 3rd ed. (New York: Columbia University Press, 2002), 156.

40. A. F. K. Organski, *World Politics* (New York: Alfred A. Knopf, 1968), 401.

41. "Obama's Budget Ignores Entitlement Crisis," Heritage Foundation, accessed 5 February 2010, http://www.heritage.org/research/features/budgetchartbook/obama-scenario.aspx; Mary Williams Walsh, "Social Security to See Payout Exceed Pay-in This Year," *New York Times*, 24 March 2010, http://www.nytimes.com/2010/03/25/business/economy/25social.html; Stephen

Ohlemacher, "1 Out of 6 Americans Depend on Programs for Poor," *Seattle Times*, 26 February 2007, http://seattletimes.nwsource.com/html/nationworld/2003589315_welfare26.html; and Douglas Elmdorf (director, Congressional Budget Office), to Nancy Pelosi (Speaker of the US House of Representatives), letter, 20 March 2010, http://www.cbo.gov/ftpdocs/113xx/doc11379/AmendReconProp.pdf.

42. Adam Talaber and Daniel Frisk, *Long-Term Implications of the Fiscal Year 2010 Defense Budget* (Washington: Congressional Budget Office, 2010), 8.

43. USAF, *Global Partnership Strategy: Building Partnerships for the 21st Century* (Washington: DAF, 2008).

44. Ibid., 2.

45. Robert Gates, *Department of Defense Report on Strategic Communication* (Washington: OSD, 2009).

46. Jennifer Moroney, *Building an Assessment Framework for U.S. Air Force Building Partnership Programs* (Washington: RAND, 2010).

47. Stephen Flynn, "U.S. Not Prepared for the Next 'Big One'," *CNN.com*, 20 February 2007, http://www.cnn.com/2007/US/02/20/flynn.commentary/index.html.

48. AFDD 2-10, *Homeland Operations*, 21 March 2006, 5. This is discussed further in DoD Directive (DODD) 3025.1, *Military Support to Civil Authorities*, 15 January 1993.

49. AFI 10-802, *Military Support to Civil Authorities*, 19 April 2002, par. 4.3.4.

50. This echoes similar wording in JP 3-26, *Homeland Security*, 2 August 2005, and in DODD 3025.1, *Military Support to Civil Authorities*.

51. Wayne H. Nelson and David Arday, "Medical Aspects of Disaster Preparedness and Response—A System Overview of Civil and Military Resources and New Potential," *Joint Center for Operational Analysis (JCOA) Journal* 9, no. 2 (June 2007): 11. See also Justin Rood, "Medical Catastrophe," *Government Executive*, 1 November 2005, http://www.govexec.com/features/1105-01/1105-01s1.htm. For example, catastrophes could be earthquakes of a 6.0 magnitude or higher, tsunamis, or volcanic eruptions.

52. AFDD 2-10 lists eight examples of Air Force capabilities (along with a laundry list of "Potential Defense Support of Civil Authority Missions" in fig. 3.1) which are based on previous missions. AFDD 2-10, *Homeland Operations*, 27. An Army National Guard homeland defense white paper lists "Top 10 Essential Homeland Defense Capabilities," seven of which have an obvious air component mission. US Army National Guard, "September 11th, 2001, Hurricane Katrina, and Beyond," 11 October 2005, 11, http://www.arng.army.mil/News/publications/Publications/HLD%20White%20Paper_11OCT05_Final_Version.pdf). See also *The Federal Preparedness Report* (Washington: DHS, January 2009), table 2, 100, for a listing of 13 DoD asset contributions, the majority of which are suitable for Air Force accomplishment, http://www.iaem.com/committees/governmentaffairs/documents/FPR-Jan2009.pdf; and *Joint Center for Operational Analysis Journal* 9, no. 2 (June 2007): table 4, 17. For a list of seven emergency measures that the federal government can unilaterally provide, see the American Bar Association (ABA) Standing Committee on Law and National Security, *Hurricane Katrina Task Force Subcommittee Report* (Washington: ABA, February 2006), 5, http://www.abanet.org/adminlaw/KatrinaReport.pdf.

53. J. Emery Midyette Jr., "Resource and Structure of States' National Guard," *Joint Center for Operational Analysis Quarterly Bulletin* 8, no. 2 (June 2006): 33, 37, https://transnet.act.nato.int/WISE/test/LessonsLea/JCOALL/JCOABullet6/file/_WFS/JCOA%20Katrina.pdf.

54. On average, local and state authorities handle about 25 "disasters" per year, only about 15 of which result in 40 or more casualties. Nelson and Arday, "Medical Aspects of Disaster Preparedness and Response," 13. Floods, mudslides, forest fires, and similar disasters are usually

localized, do not cause calamitous loss of life or property, and do not disrupt interstate commerce or impact national security. Here is where the National Guard is most likely to respond within their states or in concert with other Guard units under emergency military assistance compacts (EMAC). As the commander in chief within their states, governors can recall National Guard personnel in state active duty (SAD) status or under 10 USC Title 32. In both cases, Guard personnel are under the command and control of the governor, as exercised through the state's adjutant general. Moreover, Guard forces in SAD status or under Title 32 status can restore public order using police powers that federal forces do not have under the Posse Comitatus Act. If federal (Title 10) forces are needed, an elaborate process must take place to get them on the ground. According to the White House analysis of the military response to Hurricane Katrina, DoD assets were dispatched only after an approval process requiring *21* separate steps. Lag time between the request and federal "boots on the ground" was measured in days, not hours. "Integrated Use of Military Capabilities" in *The Federal Response to Hurricane Katrina: Lessons Learned* (Washington: White House, February 2006), chap. 5, 5, http://georgewbush-white house.archives.gov/reports/katrina-lessons-learned/chapter5.html.

55. For a detailed review of how to base ANG airlift aircraft for domestic support, see John Conway, "Beddown Options for Air National Guard C-27J Aircraft: Supporting Domestic Response," *Air and Space Power Journal* 24, no. 2 (Summer 2010): 35–44, http://www.airpower .maxwell.af.mil/airchronicles/apj/apj10/sum10/06conway.html.